

REMARKS

Claims 37-41, 43, 47-57, and 63-66 are pending in the application.

Claims 37-43, 47-57 and 63-66 have been rejected.

Claims 37 and 43 has been amended.

Claims 38-41, 47-57, and 63-66 are kept unchanged.

Claims 42, 44-46, 58-62, and 67-74 have been canceled.

The rejection of claim 43 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as his invention, is now moot because the phrase "cellulose" has been deleted from amended claim 43.

The rejection of claims 37-39, 47-50, 56, 57, and 64-66 under 35 U.S.C. § 102 (b) as being anticipated by Gregory et al. (U.S. Patent # 4,952,278), is respectfully traversed and is addressed in light of the comments below.

The instant invention relates to a combination in dry form, comprising microfibrils with a mean diameter of less than 0.8 μm and a form factor which is defined as the ratio between the mean length of the microfibrils and its mean diameter such that their mean length always remains less than 30 μm , and at least one mineral particle.

Gregory et al. teach the preparation of a paper with both improved mechanical properties in terms of tensile strength and improved optical properties. In that connection, Gregory et al. describe a paper comprising cellulose fibers, between 1% and 25% of expanded cellulose fibers and an efficient amount of a opacifying mineral pigment, preferably from 1 to 15% by weight.

Each of the above components has a very precise definition in the Gregory patent:

- the cellulose fibers are made from cellulose polymers (column 1, lines 66-68). These polymers are aggregated to form microfibrils with a diameter of between 10 and 20 nm, and the microfibrils are often in the form of small bundles also called macrofibrils (column 2, lines 1-5);
- the expanded cellulosic fibers are obtained from cellulosic fibers which have been separated or disassociated from a cellulosic fiber superstructure (column 2, lines 29-33).

Gregory et al. are utterly mute on the use of microfibrils with a mean diameter of less than 0.8 μm and a form factor which is defined as the ratio between the mean length of the microfibrils and its mean diameter such that their mean length always remains less than 30 μm . Moreover Gregory et al. do not describe nor even suggest a combination in dry form, comprising these microfibrils and mineral particles.

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claims 37-39, 47-50, 56, 57, and 64-66 under 35 U.S.C. § 102 (b) as being anticipated by Gregory et al. (U.S. Patent # 4,952,278).

The rejection of claims 37, 38, 40-42, 47, 64 and 65 under 35 U.S.C. § 102 (b) as being anticipated by Awane et al. (English translation to Japanese Application 61-7374), is respectfully traversed and is addressed in light of the comments below.

Awane et al. teach a non-slip material which may be stuck to a variety of surfaces (tires, shoes) in order to provide same good anti slip properties (please see page 1, lines 22-27 and page 4, lines 7-12). that non-slip material comprises an adhesive strip and a

rubber strip. The rubber strip comprises reinforcing fillers comprising particules having a diameter of at most $1\mu\text{m}$ (page 14, lines 14-21). The suitable reinforcing fillers suitable are carbon black, silica, clays, calcium carbonate (page 5, lines 7-12). The rubber strip may also comprise mineral or organic short fibers having a length of between $10\mu\text{m}$ and $3\mu\text{m}$ and a ratio length/diameter of between 10 and 500 (page 5, lines 13-16).

Awane et al. does not give a clue on the diameter of the fibers although it is yet possible to calculate a minimum diameter when the minimum length is $10\mu\text{m}$ and the ratio length/diameter is 10, which comes to a minimum diameter of $D=L/R=1\mu\text{m}$.

Therefore, Awane et al. do not describe nor even suggest:

- on the one hand, microfibrils having a mean diameter of less than $0.8\mu\text{m}$ and a form factor which is defined as the ratio between the mean length of the microfibrils and its mean diameter such that their mean length always remains less than $30\mu\text{m}$, and,
- on the other hand, a combination in dry form, comprising these microfibrils and mineral particles.

According to Awane et al. teaching, the frictional performance is better in a rubber without reinforcing fillers (without mineral particles) than in a rubber without those fillers (page 13, lines 1-6 with reference to table 1). Unexpectedly, the instant invention leads to an opposite result.

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claims 37, 38, 40-42, 47, 64 and 65 under 35 U.S.C. §

102 (b) as being anticipated by Awane et al. (English translation to Japanese Application 61-7374).

The rejection of claims 40-42 under 35 U.S.C. § 102 (b) as anticipated by, or, in the alternative, under 35 U.S.C. § 103 (a) as being obvious over Gregory et al. (U.S. Patent # 4,952,278), is respectfully traversed and is addressed in light of the comments below.

Again, Applicant submits that Gregory et al. cannot anticipate or make obvious the use of microfibrils with a mean diameter of less than 0.8 μm and a form factor which is defined as the ratio between the mean length of the microfibrils and its mean diameter such that their mean length always remains less than 30 μm . Moreover Gregory et al. do not describe nor even suggest a combination in dry form, comprising these microfibrils and mineral particles.

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claims 40-42 under 35 U.S.C. § 102 (b) as anticipated by, or, in the alternative, under 35 U.S.C. § 103 (a) as being obvious over Gregory et al. (U.S. Patent # 4,952,278).

The rejection of claims 37-42, 47-50, 56 and 57 under 35 U.S.C. § 103 (a) as being unpatentable over Kaliski (U.S. Patent # 5,312,484), in view of Kaliski (U.S. Patent 5,240,561), is respectfully traversed and is addressed in light of the comments below. Kaliski (U.S. Patent # 5,312,484) relates to derivative composite pigment products comprising:

From 4.5 to 50% of a particulate titanium diocide,

From 5 to 95% of one extender pigment, and from 0.5 to 10% of in-situ-synthesized complex functional calcium-silico-aluminate, or similar microgels (last paragraph of column 13). The function of those microgels is to achieve the flocculation of all particulates (column 16, lines 64-68). Those microgels may further comprise cellulose microfibrils (column 14, line 20) whose length is preferably between 1 and 10 μm (column 39, lines 3-5). Those microfibrils are obtained by the process taught by Kaliski (U.S. Patent 5,240,561) in column 39 lines 42-46. However, the microfibrils obtained by Kaliski (U.S. Patent 5,240,561) present a length of between 10 and 200 μm (Column 38, lines 65-68 and column 34, line 1). Therefore, the microfibrils used by Kaliski (U.S. Patent # 5,312,484), cannot be obtained by the process described by Kaliski (U.S. Patent 5,240,561). Thus, the microfibrils are different and the two Kaliski patents cannot be combined. Even combined, the two patents fail to teach the use of microfibrils with a mean diameter of less than 0.8 μm and a form factor which is defined as the ratio between the mean length of the microfibrils and its mean diameter such that their mean length always remains less than 30 μm . Moreover, the two Kaliski patents do not describe nor even suggest a combination in dry form, comprising these microfibrils and mineral particles.

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claims 37-42, 47-50, 56 and 57 under 35 U.S.C. § 103 (a) as being unpatentable over Kaliski (U.S. Patent # 5,312,484), in view of Kaliski (U.S. Patent 5,240,561).

The rejection of claim 43, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Myers (U.S. Patent # 4,617,353), or over Kaliski, in view of Kaliski as set forth above and further in view of Myers, is respectfully traversed and is addressed in light of the comments below.

Myers (U.S. Patent # 4,617,353) teaches a process of converting an insulating matrix polymer to a conductive substrate. The process comprises the step of polymerizing in situ pyrrole to form a polyblend of poly(2,5-pyrrolyr) and said matrix polymer (from column 2, line 60 to column 3, line 2. Myers is absolutely mute on applying his process on cellulose fibers. In that connection, Myers focuses on synthetic polymers and do not cite one single natural product from column 6, line 66 to column 7, line 68. Therefore the man skill in the art of cellulose fibers is not at all motivated to combine Myers with Gregory and the two Kaliski patents.

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claim 43, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Myers (U.S. Patent # 4,617,353), or over Kaliski, in view of Kaliski as set forth above and further in view of Myers.

The rejection of claim 51, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Chen (U.S. Patent # 5,817,381), or over Kaliski, in view of Kaliski as set forth above and further in view of Chen, is respectfully traversed and is addressed in light of the comments below.

Chen (U.S. Patent # 5,817,381) teaches the influence of cristallinity of non-wood cellulose fibers on the properties of papers made from those fibers. What is claimed in

the instant application is not a paper but a combination in dry form, of (cellulose) microfibrils and mineral particles. Furthermore, the combination of Chen with Gregory and the two Kaliski patents fails to teach that these microfibrils have to have a mean diameter of less than 0.8 μm and a form factor such that their mean length always remains less than 30 μm .

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claim 51, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Chen (U.S. Patent # 4,817,381), or over Kaliski, in view of Kaliski as set forth above and further in view of Chen.

The rejection of claim 52, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Dinand (U.S. Patent # 5,964,983), or over Kaliski, in view of Kaliski as set forth above and further in view of Dinand, is respectfully traversed and is addressed in light of the comments below.

Dinand et al. disclose microfibrillated cellulose containing 80% primary walls. However, as above explained for Meyers, what is claimed in the instant application is not a paper but a combination in dry form, of (cellulose) microfibrils and mineral particles. Furthermore, the combination of Dinand with Gregory and the two Kaliski patents fails to teach that the microfibrils have to have a mean diameter of less than 0.8 μm and a form factor such that their mean length always remains less than 30 μm .

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claim 52, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Dinand (U.S. Patent # 5,964,983), or over Kaliski, in view of Kaliski as set forth above and further in view of Dinand.

The rejection of claim 53-55, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Herrick (U.S. Patent # 4,481,076), or over Kaliski, in view of Kaliski as set forth above and further in view of Herrick, is respectfully traversed and is addressed in light of the comments below.

Herrick (U.S. Patent # 4,481,076) teach redispersible microfibrillated cellulose and their association with carbohydrates.

However, as above explained for Meyers and Dinand, what is claimed in the instant application is not a paper but a combination in dry form, of (cellulose) microfibrils and mineral particles. Furthermore, the combination of Herrick with Gregory and the two Kaliski patents fails to teach that the microfibrils have to have a mean diameter of less than 0.8 μm and a form factor such that their mean length always remains less than 30 μm .

For these reasons, Applicant respectfully requests that the Examiner now reconsider and withdraw the rejection of claim 53-55, under 35 U.S.C. § 103 (a) as being unpatentable over Gregory et al. (U.S. Patent # 4,952,278) in view of Herrick (U.S. Patent # 4,481,076), or over Kaliski, in view of Kaliski as set forth above and further in view of Herrick.

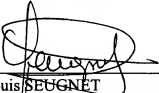
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Serial number 09/601,887
AMENDMENT

In view of the preceding remarks, it is asserted that the patent application is in condition for allowance. Should the Examiner have any question concerning these remarks that would further advance prosecution of the claims to allowance, the examiner is cordially invited to telephone the undersigned attorney at (609) 860-4180. A notice of allowance is respectfully solicited.

Respectfully submitted,

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Marked-up Amended Claims

Please amend claim 37 as follows:

37. (Amended) A combination in dry form, comprising microfibrils with a mean diameter of less than $0.8\text{ }\mu\text{m}$ and a form factor which is defined as the ratio between the mean length of the microfibrils and its mean diameter such that their mean length always remains less than $30\text{ }\mu\text{m}$, and at least one mineral particle.

Please cancel claim 42.

Please amend claim 43 as follows:

43. (Amended) A combination according to claim 37, wherein the ~~cellulose~~ microfibrils are surface-treated such that they bear a polypyrrole coat.

Please cancel claims 44-46, 58-62, and 67-74.

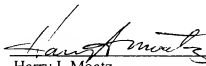
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Expires: November 19, 2003



Harry I. Moatz
Director of Enrollment and Discipline